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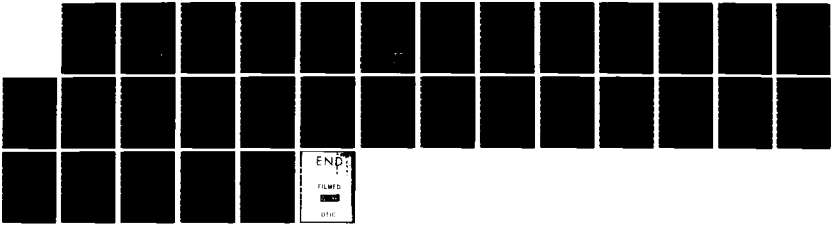

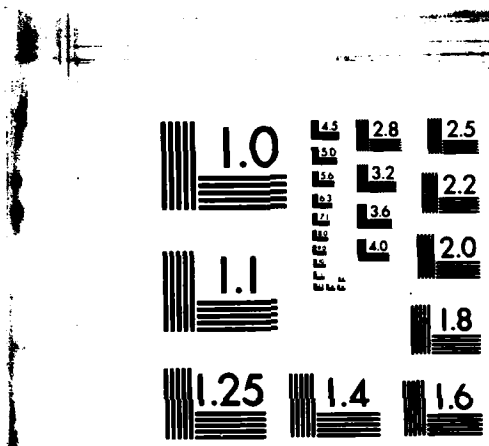

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U.S. Tundra Biome–International Biological Program

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Final Report to Division of Polar Programs, National Science Foundation
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INTRODUCTION

The U.S. Tundra Biome program, a part of the Ecosystem Analysis Studies of the U.S. International Biological Program, was divided into three phases:

1. Pre-Biome planning and initiation of field activities (1968–1970)
2. Formal field activities (1971–1973)
3. Post-field-activity period (1974–1980)

The pre-Biome phase included planning workshops, participating in international meetings, and organizing of existing data bases. This phase started informally in the late 1960s and included the 1970 field season. Three general objectives were formulated that governed the development of the program: 1) to develop a predictive understanding of how the tundra system operates, particularly as exemplified by the wet coastal tundra of northern Alaska; 2) to obtain the necessary data base from a variety of cold-dominated ecosystems represented in the United States so that their behavior could be modeled and simulated and the results compared with similar studies underway in other circumpolar countries; and 3) to bring basic environmental knowledge to bear on problems of degradation, maintenance, and restoration of the temperature-sensitive and cold-dominated tundra and taiga ecosystems. These objectives were related to both the U.S. National IBP objectives and the international Tundra IBP projects.

By the 1971 field season, the integrated research was recognized nationally as a full-fledged Biome program. During this second phase data were collected over three summers of intensive field investigations at Barrow, and at lesser intensity and funding levels at Eagle Summit and Prudhoe Bay in Alaska and Niwot Ridge, Colorado. Included in phase 2 were numerous workshops and international and national meetings.

Phase 3 began in 1974, the last formal year of the IBP. It included the U.S. synthesis activities for publication of an aquatic and two terrestrial books on arctic tundra, and emphasized open-literature publication and internal report preparation.

The published or open literature and the dissertations prepared under the U.S. Tundra Biome program offer a reasonably complete record of the Biome research. Although some additional papers are still in press, this report is a nearly complete list of papers and dissertations. Some of these have been accomplished in cooperation with other agencies and institutional funding and resources, and are so indicated as cooperative contributions (*).

Our compilation also attempts to cross-reference the entries to other sources, since it is not our intention to provide reprints of each paper or dissertation to the recipient of this list. Most dissertations are accessioned by University Microfilms International and our list contains the UM order number. Abstracts of almost all papers are available through the Oak Ridge National Laboratory publication entitled "Abstracts—U.S. International Biological Program. Ecosystem Analysis Studies." Computerized searches of these abstract files and the abstract publication can be obtained from Julia Watts, EDFB Data Center, Oak Ridge National Laboratory, P.O. Box X, Oak Ridge, TN 37830. The open literature list has also been accessioned in the "Bibliography on Cold Regions Science and Technology," and numbers set off by / / indicate these citations. The Bibliography is published annually by CRREL, and is available from the National Technical Information Service, Springfield, VA 22161 for $15.00. Microfiches of each entry are available from the Library of Congress Photoduplication Service, Washington, D.C., or the CRREL Library.

In addition to this open literature list, a number of books on the Tundra Biome, both national and international, are available as long as supplies last. Titles, first-printing prices, and ordering information are as follows:

11. *Proceedings, IV International Meeting on the Biological Productivity of Tundra, Leningrad, U.S.S.R., October 1971* (F.E. Wielgolaski and Th. Rosswall, Eds.). Stockholm: IBP Tundra Biome Steering Committee, April 1971. (Available from: Swedish IBP Committee, Wenner-Gren Center, Sveavagen 166 15 tr, S-113 46, Stockholm, Sweden. Price: Sw.Cr. 20—Approx. $4.75.)

2. *Proceedings of the Conference on Primary Production and Production Processes, Tundra Biome, Dublin, Ireland, April 1973* (L.C. Bliss and F.E. Wielgolaski, Eds.). Stockholm: IBP Tundra Biome Steering Committee, December 1973. (Available from: Dr. L.C. Bliss, Department of Botany, University of Washington, Seattle, Washington. Price: $4.00.)

3. *Soil Organisms and Decomposition in Tundra* (A.J. Holding, O.W. Heal, S.F. MacLean, Jr., and P.W. Flanagan, Eds.). Stockholm: IBP Tundra Biome Steering Committee, October 1974. (Available from: Swedish IBP Committee, Wenner-Gren Center, Sveavagen 166 15 tr, S-113 46, Stockholm, Sweden. Price: Sw.Cr. 25—Approx. U.S. $6.00.)

4. *Structure and Function of Tundra Ecosystems* (Th. Rosswall and O.W. Heal, Eds.). Ecological Bulletins, NFR 20, Stockholm, August 1975. (Available from: Swedish Natural Science Research Council, Wenner-Gren Center, Box 23136, S-104 35, Stockholm, Sweden. Price: Sw.Cr. 50—Approx. U.S. $11.90.)

5. *Ecological Investigations of the Tundra Biome in the Prudhoe Bay Region, Alaska* (J. Brown, Ed.). Biological Papers of the University of Alaska, Special Report No. 2, October 1975. (Available from: Biological Papers, 202 Bunnell Building, University of Alaska, Fairbanks, AK 99701. Price: $10.00.)

6. *Truelove Lowland, Devon Island, Canada: A High Arctic Ecosystem* (L.C Bliss, Ed.)., 1977. (Available from: The University of Alberta Press, 450 Athabasca Hall, Edmonton, Alberta, Canada T6G 2E8. Price: $20.00 plus $1.00 postage and handling.)

7. *Fennoscandian Tundra Ecosystems: Part 1. Plants and Microorganisms* (F.E. Wielgolaski, Ed.), 1975. Ecological Studies 16. New York: Springer-Verlag. (Price: $73.00.)

8. *Fennoscandian Tundra Ecosystems. Part 2. Animals and Systems Analysis* (F.E. Wielgolaski, Ed.), 1976. Ecological Studies 17. New York: Springer-Verlag. (Price: $73.00.)

9. *An Arctic Ecosystem: The Coastal Tundra of Northern Alaska* (J. Brown, P.C. Miller, L.L. Tieszen and F.L. Bunnell, Eds.), 1980. Stroudsburg, Pa.: Hutchinson Ross Publishing Company. (Price: $34.00.)

10. *Limnology of Tundra Ponds, Barrow, Alaska* (J.E. Hobbie, Ed.), 1980. Stroudsburg, Pa.: Hutchinson Ross Publishing Company. (Price: $34.00.)

11. *Vegetation and Production of an Alaskan Arctic Tundra* (L.L. Tieszen, Ed.), 1978. New York: Springer-Verlag. (Price: $34.80.)

12. *Geobotanical Atlas of the Prudhoe Bay Region, Alaska* (D.A. Walker, K.R. Everett, P.J. Webber and J. Brown, Eds.), 1980. U.S. Army Cold Regions Research and Engineering Laboratory, CRREL Report 80-14, 73 pp. (Available from: CRREL/TIB, 72 Lyme Road, Hanover, NH 03755. Price: $25.00.)

13. *Tundra Ecosystems: A Comparative Analysis* (L.C. Bliss, O.W. Heal and J.J. Moore, Eds.), 1981. Cambridge: Cambridge University Press. (Price: $120.00.)

14. *Ecology of a Subarctic Mire* (M. Sonesson, Ed.), 1980. Ecological Bulletins No. 30, Stockholm. (Available from Swedish Natural Science Research Council, Wenner-Gren Center, Box 23136, S-104 35, Stockholm, Sweden. Price: Sw.Cr. 125—Approx. U.S. $30.00.)

15. *Production Ecology of British Moors and Montane Grasslands* (O.W. Heal and D.R. Perkins, Eds.), 1978. Berlin: Springer-Verlag, 426 pp. (Price: $49.80.)

Reprints of journal articles are best obtained directly from the author. Bound sets of the U.S. Tundra Biome internal reports, newsletters, proposals, and other documentation are on file at: USACRREL; University of Alaska, Institute of Arctic Biology; National Science Foundation, Ecosystems and Analysis Section and Division of Polar Programs.

This report constitutes the final report to the National Science Foundation by Dr. Jerry Brown, U.S. Tundra Biome Director, USACRREL, under NSF-CRREL Interagency Agreement CA-40. CRREL and Dr. Brown were responsible for the management of the U.S. Tundra Biome Program and the program's final documentation.

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